#7

SEQUENCE LISTING

<110> Gurskaya, Nadejda
Fradkov, Arkadiy
Lukyanov, Sergey
Punkova, Natalia

<120> Fluorescent Protein From Aequorea Coerulscens And Uses Thereof

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<140> US 10/501,629

<141> 2005-07-15

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<212> DNA
<213> Aequoria coerulescens

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<213> Aequoria coerulescens

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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
20 25 30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
35 40 45

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Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
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Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 3
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<212> DNA
<213> Aequoria coerulescens

<400> 3
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aatagaattg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
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cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctaccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
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<212> PRT
<213> Aequoria coerulescens

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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35                  40                  45
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Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 5
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<212> DNA
<213> Aequoria coerulescens

<400> 5
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aatagaattg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctaccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
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<210> 6
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<212> PRT
<213> Aequoria coerulescens

<400> 6
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 1               5                  10                  15
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35                  40                  45
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```
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<213> Aequoria coerulescens

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cagcatgact tcttcaagag tgccatgcct gaaggttata tacaggaaag aactatattt 300
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gttaatagaa ttgagttaac aggtactgat tttaaagaag atggaaacat ccttggaaat 420
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ggaatcaaag ttaacttcaa aattagacac aacattgaag atggaagcgt tcaacttgca 540
gaccattatc aacaaaatac tccaattggc gatggccctg tccttttacc agataaccat 600
tacctgtcca cacaatctac cctttccaaa gatcccaacg aaaagagaga tcacatgatc 660
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<210> 8
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<212> PRT
<213> Aequoria coerulescens

<400> 8
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 9
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<212> DNA
<213> Aequoria coerulescens

<400> 9
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<210> 10
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<212> PRT
<213> Aequoria coerulescens

<400> 10
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Thr Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<213> Aequoria coerulescens

<400> 11
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gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
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gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga taccctggtt 360
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cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgggtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa    717
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<212> PRT
<213> Aequoria coerulescens

<400> 12
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            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<212> DNA
<213> Aequoria coerulescens

<400> 13
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aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
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gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga taccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acataatgta tacatcatga cagacaaagc aaaaaatgga 480
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cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
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<210> 14
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<212> PRT
<213> Aequoria coerulescens

<400> 14
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 15
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<212> DNA
<213> Aequoria coerulescens

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<210> 16
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<212> PRT
<213> Aequoria coerulescens

<400> 16
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Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
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```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Phe Glu Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
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<210> 17
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<212> DNA
<213> Aequoria coerulescens

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gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcaagggtga taccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc acagaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attgaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatcctg 660
ctggagtttg taacagctgc tgcgattaca catggcatgg atgaactata ccaataa 717

<210> 18
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 18
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Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
 1               5                  10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Lys Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala Gln Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Gln
225                 230                 235
```

<210> 19
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 19
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atgagtaaag gagcagaact tttcactgga attgtcccaa ttcttattga attaaatggt 60
gatgttaatg ggcacaaatt ctctgtcagt ggagagggcg aaggtgatgc gacatacgga 120
aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
gtcgctactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatatttttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga taccctggtt 360
agtagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc aactaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttcaaaat tagacacaac attaaagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa    717
```

<210> 20
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 20
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
 1               5                  10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Ala Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Ser Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala Thr Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
```

<210> 21
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 21
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gatgttaatg ggcacaaatt ctctgtcagt ggagagggcg aaggtgatgc gacatacgga 120
aagttaaccc ttaaatttat ttgcactaca ggaaaactac ctgttccatg gccaacactt 180
gtcactactc tctcttatgg tgttcaatgc ttttcaagat atccagatca tatgaaacag 240
catgacttct tcaagagtgc catgcctgaa ggttatatac aggaaagaac tatatttttc 300
gaagatgacg ggaactacaa gtcgcgtgct gaagtcaagt tcgagggtga taccctggtt 360
aatagaatcg agttaacagg tactgatttt aaagaagatg gaaacatcct tggaaataaa 420
atggaataca actataacgc atctaatgta tacatcatga cagacaaagc aaaaaatgga 480
atcaaagtta acttgaaaat tagacacaac attgcagatg gaagcgttca acttgcagac 540
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga taaccattac 600
ctgtccacac aatctgccct ttccaaagat cccaacgaaa agagagatca catgatctat 660
tttgagtttg taacagctgc tgcgattaca catggcatgg atgaactata caaataa 717

<210> 22
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 22
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
 1               5                  10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala Ser Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Leu Lys Ile Arg His Asn Ile Ala Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Glu Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Ile Lys
225                 230                 235
```

<210> 23
<211> 717
<212> DNA
<213> Aequoria coerulescens

<400> 23
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atgagcaagg gcgccgagct gttcaccggc atcgtgccca tcctgatcga gctgaatggc 60
gatgtgaatg gccacaagtt cagcgtgagc ggcgagggcg agggcgatgc cacctacggc 120
aagctgaccc tgaagttcat ctgcaccacc ggcaagctgc ctgtgccctg gcccaccctg 180
gtgaccaccc tgagctacgg cgtgcagtgc ttctcacgct accccgatca catgaagcag 240
cacgacttct tcaagagcgc catgcctgag ggctacatcc aggagcgcac catcttcttc 300
gaggatgacg gcaactacaa gtcgcgcgcc gaggtgaagt tcgagggcga taccctggtg 360
aatcgcatcg agctgaccgg caccgatttc aaggaggatg gcaacatcct gggcaataag 420
atggagtaca actacaacgc ccacaatgtg tacatcatga ccgacaaggc caagaatggc 480
atcaaggtga acttcaagat ccgccacaac atcgaggatg gcagcgtgca gctggccgac 540
cactaccagc agaatacccc catcggcgat ggccctgtgc tgctgcccga taaccactac 600
ctgtccaccc agagcgccct gtccaaggac cccaacgaga agcgcgatca catgatctac 660
ttcggcttcg tgaccgccgc cgccatcacc cacggcatgg atgagctgta caagtga    717
```

<210> 24
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 24
```
Met Ser Lys Gly Ala Glu Leu Phe Thr Gly Ile Val Pro Ile Leu Ile
 1               5                  10                  15
Glu Leu Asn Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
```

```
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Ile Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Glu Asp Asp Gly Asn Tyr Lys Ser Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Thr Gly Thr
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly Asn Lys Met Glu Tyr Asn
    130                 135                 140
Tyr Asn Ala His Asn Val Tyr Ile Met Thr Asp Lys Ala Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Tyr Phe Gly Phe Val
    210                 215                 220
Thr Ala Ala Ala Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
```

<210> 25
<211> 238
<212> PRT
<213> Aequoria coerulescens

<400> 25

```
Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
 1               5                  10                  15
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
            20                  25                  30
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
        35                  40                  45
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
    50                  55                  60
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
65                  70                  75                  80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
                85                  90                  95
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
            100                 105                 110
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
        115                 120                 125
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
    130                 135                 140
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
145                 150                 155                 160
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                165                 170                 175
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
            180                 185                 190
```

```
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
        195                 200                 205
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
    210                 215                 220
Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225                 230                 235
```